

Study of Risk Factors of Post-Partum Hemorrhage and Its Outcome at Tertiary Care Center

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Abstract: *Background: Postpartum hemorrhage (PPH) is one of the most common causes of maternal death, especially in developing country. Pregnancy and childbirth involve significant health risks, even to women with no preexisting health problem. The objective of this study was to analyze various risk factors associated with PPH. Methods: This prospective observational study was conducted in the department of Obstetrics and Gynecology of Department of Obstetrics and Gynecology, Umaid hospital, Dr. S. N. Medical College, Jodhpur, India. A total number of 200 cases of postpartum hemorrhage were included. Results: Most common cause of post-partum haemorrhage was the atonicity of the uterus which was seen in 164 (82%) of the total pregnant women. PIH was seen in 70 (35%) pregnant women followed by APH which was seen in 48 (24%) pregnant women. Prolonged labour was accounts for 26 (13%) cases of PPH and retained placental products accounts for 20 (10%) cases of PPH. Large baby induced PPH was seen in 14 (7%) pregnant women and genital tract injuries accounts for 12 (6%) cases of PPH. PPH due to ruptured uterus was seen in 10 (5%) pregnant women and multi parity accounts for 8 (4%) cases of PPH. Infections were accounts for 6 (3%) cases of PPH and uterine inversion accounts for 2 (1%) cases of PPH.. Conclusions: We concluded from the present study that post-partum hemorrhage can be managed effectively by active management of the third stage of labour with use of uterotonics and blood transfusion. It is important to be prepared for PPH in all women giving birth, as some develop it without any known risk factors.*

Keywords: PPH, atonicity, maternal mortality

1. Introduction

Post-partum haemorrhage (PPH) is loss of blood ≥ 500 ml within the 24 hours of the labour¹. PPH is considered severe if blood loss is more than 1,000 ml after a normal vaginal delivery, or there are signs or symptoms of circulating blood volume instability. Post-partum haemorrhage is responsible for approximately 23% of maternal mortality worldwide and also reported as the most common cause of maternal mortality in Asian continent². The most common direct cause of maternal deaths and as well as maternal morbidity in India is post-partum haemorrhage, reported in various researches and accounts for 25% maternal deaths. Maternal deaths due to post-partum haemorrhage are significantly low (approximately 8%) in developed countries. i.e. pregnant women giving childbirth in the developing countries are exposed to greater risk of dying during labour than countries in their developed counterparts which suggests that it is a preventable cause of maternal mortality.³

The causes for PPH as related to abnormalities of one or more of four basic processes, namely the “four Ts”: tone, trauma, tissue, and thrombin. Risk factors include history of PPH, multiple pregnancies, fetal macrosomia, primigravida, grand multiparity, older age, preterm births, genital tract injuries, non-use of oxytocin for PPH prophylaxis, labor induction, cesarean delivery and intra-uterine fetal deaths⁶. Uterine atony is responsible for the majority (75%) of cases of PPH¹¹. Sequelae of PPH include hypotension, anemia, and fatigue, which can make breastfeeding and maternal care of the newborn more difficult⁴. Post-partum haemorrhage reported as the most common direct cause of maternal deaths, hence there is essential need of active management of the third stage of labour in all the cases⁴. The mortalities due to post-partum

haemorrhage represents only cases which are registered for institutional delivery and the submerged portion of the iceberg which represents the overall mortality is still hidden which is the target for policy makers⁵. Risk factor identification in the antenatal and intrapartum periods might help in early interventions to prevent PPH. Training programs based on active management of third stage of labour are the mainstay in the early diagnosis, prevention and management of the postpartum haemorrhage⁶. They should include hands-on training on management of post-partum haemorrhage along with seminars and video presentations, manual removal of placenta along with management of retained placenta, how to visually estimate the blood loss, management of uterine tamponade, bimanual uterine compression, repair of injuries during labour, compression sutures, ligation of internal iliac artery and uterine devascularization⁷. Hence, the present study aimed to know the risk factors and outcome of post-partum haemorrhage at our tertiary care centre.

2. Materials & Methods

The present cross-sectional prospective study was conducted at Umaid Hospital, Dr S. N. Medical College, Jodhpur. The study duration was of one year from January 2020 to December 2020. A sample size of 200 was calculated at 95% confidence interval at 10% acceptable margin of error by epi info software version 7.2. A total of 200 cases who had vaginal delivery with blood loss of 500 ml or more and cases who had caesarean section with blood loss of 1000 ml or more, were enrolled for study. Written informed consent from each and every participant was taken prior to study. Detailed socio-demographic data were taken and recorded along with general physical and clinical examination. Pregnant women requiring more than 2 blood transfusions, pregnant women who required surgical

intervention such as B Lynch ligation with or without internal iliac artery ligation, pregnant women in whom obstetric hysterectomy was done were excluded from the study.

3. Results

In the present study a total of 200 pregnant women who had post-partum haemorrhage were enrolled. The age of the pregnant women were range from 20 to 35 years, with a mean age of 26 years. 71% of the pregnant women were from rural background. 50% of the pregnant women were

referred from periphery. Majority of pregnant women had normal vaginal delivery 136 (68%) while caesarian section was mode of delivery among 64 (32%) pregnant women. Majority of pregnant women were primigravida 110 (55%) while pregnant women with gravida 2 and gravida 3 or more were 68 (34%) and 22 (11%) respectively. Commonest complication was anaemia in 126 (63%) pregnant women. DIC and other complications were seen in 12 (6%) and 10 (5%) pregnant women respectively. No complications were seen in 52 (26%) pregnant women. There were no maternal deaths reported in present study. (Table 1).

Table 1: Distribution of study participants according to study parameters

	Parameters	No. of cases
Mode of delivery	NVD	136 (68%)
	LSCS	64 (32%)
Gravid status	Primigravida	110 (55%)
	Gravida2	68 (34%)
	Gravida3 and above	22 (11%)
Complications	Anemia	126 (63%)
	DIC	12 (6%)
	Others	10 (5%)
	No complications	52 (26%)

In the present study most common cause of post-partum haemorrhage was the atonicity of the uterus which was seen in 164 (82%) of the total pregnant women. PIH was seen in 70 (35%) pregnant women followed by APH which was seen in 48 (24%) pregnant women. Prolonged labour was accounts for 26 (13%) cases of PPH and retained placental products accounts for 20 (10%) cases of PPH. Large baby induced PPH was seen in 14 (7%) pregnant women and genital tract injuries accounts for 12 (6%) cases of PPH. PPH due to ruptured uterus was seen in 10 (5%) pregnant women and multi parity accounts for 8 (4%) cases of PPH. Infections were accounts for 6 (3%) cases of PPH and uterine inversion accounts for 2 (1%) cases of PPH. (Table 2).

Table 2: Risk factors associated with PPH

Risk Factors	No. of cases
Atonicity	164 (82%)
PIH	70 (35%)
APH	48 (24%)
Prolonged labor	26 (13%)
Retained placental products	20 (10%)
Large baby	14 (7%)
Genital tract injuries	12 (6%)
Rupture Uterus	10 (5%)
Multiparity	8 (4%)
Infections	6 (3%)
Uterine inversion	2 (1%)

In the present study among the majority of the pregnant women the etiology behind the post-partum haemorrhage was the atonicity of the uterus which was seen in 164 (82%) of the total pregnant women. 160 (80%) pregnant women with PPH were given uterotonics with less than 2 blood transfusions were used for the management of PPH. Perineal repair was conducted in 22 (11%) pregnant women. 18 (9%) cases of PPH were required the surgical interventions. (Table 3)

Table 3: Distribution of study participants based upon management outcomes.

Type of intervention for PPH	No. of cases
Uterotonics + <2 blood transfusions	160 (80%)
Perineal tear repair	22 (11%)
Surgical intervention	18 (9%)
Total	200 (100%)

4. Discussion

In the present study a total of 200 pregnant women who had post-partum haemorrhage were enrolled. The age of the pregnant women were range from 20 to 35 years, with a mean age of 26 years. 71% of the pregnant women were from rural background. Half of the pregnant women were referred from periphery (50%). Majority of pregnant women had normal vaginal delivery 136 (68%) while caesarian section was mode of delivery among 64 (32%) pregnant women. Majority of pregnant women were primigravida 110 (55%) while pregnant women with gravida 2 and gravida 3 or more were 68 (34%) and 22 (11%) respectively. Nearly similar finding was reported in study conducted to estimate the overall prevalence of post-partum haemorrhage which was approximately 3%. The mean age of their study participants was 35±3 years⁸. Similar findings were reported in a study conducted by Chitra S et al among 250 cases and 250 controls and the magnitude of PPH reported was 3.4%. Overall 52.5% of the pregnant women were primigravida⁹.

In this study most common complication was anaemia in 126 (63%) pregnant women. DIC and other complications were seen in 12 (6%) and 10 (5%) pregnant women respectively. No complications were seen in 52 (26%) pregnant women. There were no maternal deaths reported in present study. Similar findings were reported in a study conducted by Chandrika S et al among 12356 pregnant women over the period of two years. The majority of

pregnant women 62% were multipara. The most complication was found to be anaemia among studied participants¹⁰. In the present study the magnitude of postpartum haemorrhage was observed to be 2.2%. In previous researches the prevalence of post-partum haemorrhage were reported from 1.5% to 12% out of the total deliveries¹¹.

In the present study majority of post-partum haemorrhage were due to atonicity of the uterus which was seen in 164 (82%) of the total pregnant women. PIH was seen in 70 (35%) pregnant women followed by APH which was seen in 48 (24%) pregnant women. Prolonged labour was accounts for 26 (13%) cases of PPH and retained placental products accounts for 20 (10%) cases of PPH. Large baby induced PPH was seen in 14 (7%) pregnant women and genital tract injuries accounts for 12 (6%) cases of PPH. PPH due to ruptured uterus was seen in 10 (5%) pregnant women and multi parity accounts for 8 (4%) cases of PPH. Infections were accounts for 6 (3%) cases of PPH and Uterine Inversion accounts for 2 (1%) cases of PPH. Similar findings were reported in a study conducted by Tasneem et al among 1333 cases of post-partum haemorrhage and found the overall prevalence of PPH reported was 3.55%. The most common cause for PPH was found to be atonicity among 86% cases¹². Similar findings were reported in a study conducted by Pratima D et al, they found the overall prevalence of post-partum haemorrhage was 2%. The most common cause for PPH was atonicity reported among 62 % of the pregnant women¹³.

In the present study among the majority of the pregnant women the etiology behind the post-partum hemorrhage was the atonicity of the uterus which was seen in 82 (82%) of the total pregnant women. 80 (80%) pregnant women with PPH were given uterotonics with less than 2 blood transfusions were used for the management of PPH. Peritoneal repair was conducted in 11 (11%) pregnant women. 9 (9%) cases of PPH were required the surgical interventions. A study conducted by Naina Kumar reported that PPH is a preventable and managed by early timely intervention by active management of third stage of labor with the help of uterotonics with or without blood transfusion¹⁴.

5. Conclusion

We concluded from the present study that extra vigilance during the antenatal and peripartum periods is needed to identify women at risk and enable early intervention to prevent PPH. It is important to remember that we need to prepare for PPH in all women giving birth, as some develop it without any known risk factors. Postpartum haemorrhage can be managed effectively by active management of the third stage of labour with use of uterotonics and blood transfusions. In some cases, surgical intervention was required. To minimize PPH risk factors should be reduced, institutional deliveries should be promoted, awareness and training of health care professionals should be increased. The subject still needs elaborative research to overcome the burden of PPH.

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